

What is claimed is:

1. A storage apparatus operable as primary in a remote copy pair comprising:

5           a remote copy component operable to establish a remote copy relationship between said primary and a secondary;

              a copy component operable at said primary to create a copy for download onto a portable physical storage medium for offline transport to said secondary for upload;

10          a synchronization component for synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary;

15          a metadata component operable to store a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary; and

20          said metadata component being operable to limit synchronization at said secondary to said portion of storage having said dirty state indicator at said primary.

2. A storage apparatus as claimed in claim 1, wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data.

3. A storage apparatus as claimed in claim 1, further operable as a secondary in a remote copy pair and comprising:

5 a loading component for uploading said copy from said portable physical storage medium;

a suppressing component for suppressing synchronization from a metadata component in said secondary; and

10 a requester component for requesting synchronization of data at said secondary with data at said primary using an online link.

4. A storage apparatus as claimed in claim 1, wherein said online link comprises a storage area network.

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5. A storage apparatus as claimed in claim 1, wherein said copy component comprises a Flash Copy component.

20 6. A storage adapter card comprising a storage apparatus as claimed in claim 1.

7. A storage virtualization engine comprising a storage adapter card as claimed in claim 6.

25 8. A method of operating a storage apparatus as primary in a remote copy pair comprising the steps of:

establishing a remote copy relationship between said primary and a secondary;

5 creating a copy of a storage space for download onto a portable physical storage medium for offline transport to said secondary for upload;

synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary;

10 storing, in a metadata component, a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary; and

15 said metadata component being operable to limit synchronization at said secondary to said portion of storage having said dirty state indicator at said primary.

9. A method as claimed in claim 8, wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data.

20 10. A method as claimed in claim 8, wherein said storage apparatus is further operable as a secondary in a remote copy pair and comprising steps of:

25 uploading said copy from said portable physical storage medium;

suppressing synchronization from a metadata component in said secondary; and

requesting synchronization of data at said secondary with data at said primary using an online link.

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11. A method as claimed in claim 8, wherein said online link comprises a storage area network.

10 12. A method as claimed in claim 8, wherein said step of creating a copy of a storage space comprises using a Flash Copy component.

15 13. A computer program product comprising computer program code tangibly embodied in a computer-readable storage medium to, when loaded into a computer system and executed thereon, cause said computer system to operate a storage apparatus as primary in a remote copy pair by performing the computer program code steps of:

20 establishing a remote copy relationship between said primary and a secondary;

creating a copy of a storage space for download onto a portable physical storage medium for offline transport to said secondary for upload;

25 synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary;

storing, in a metadata component, a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary; and

5 limiting, by said metadata component, synchronization at said secondary to said portion of storage having said dirty state indicator at said primary.

10 14. A computer program product as claimed in claim 13, wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data.

15 15. A computer program product as claimed in claim 13, wherein said storage apparatus is further operable as a secondary in a remote copy pair and comprising further computer program code steps of:

uploading said flash copy from said portable physical storage medium;

20 suppressing synchronization from a metadata component in said secondary; and

requesting synchronization of data at said secondary with data at said primary using an online link.

25 16. A computer program product as claimed in claim 13, wherein said online link comprises a storage area network.

17. A computer program product as claimed in claim 13, wherein said computer program code step of creating a copy of a storage space comprises using a Flash Copy component.

5       18. A method of deploying a computerized business continuity service by operating a customer storage apparatus as primary in a remote copy pair comprising the steps of:

10             establishing a remote copy relationship between said primary and a secondary;

           creating a copy of a storage space for download onto a portable physical storage medium for offline transport to said secondary for upload;

15             synchronizing data at said secondary with data at said primary using an online link in response to a request for synchronization from said secondary;

20             storing, in a metadata component, a dirty state indicator of a portion of a storage space at said primary after establishment of said remote copy relationship at said primary; and

           said metadata component being operable to limit synchronization at said secondary to said portion of storage having said dirty state indicator at said primary.

25       19. A method as claimed in claim 18, wherein said metadata component comprises a bitmap and said portion of said storage space is a grain of data.

20. A method of deploying a computerized business continuity service as claimed in claim 18, wherein a supplier storage apparatus is operable as a secondary in a remote copy pair and comprising steps of:

5           uploading said copy from said portable physical storage medium;

              suppressing synchronization from a metadata component in said secondary; and

10           requesting synchronization of data at said secondary with data at said primary using an online link.

21. A method of deploying a computerized business continuity service as claimed in claim 18, wherein said online link comprises a storage area network.

15           22. A method of deploying a computerized business continuity service as claimed in claim 18, wherein said step of creating a copy of a storage space comprises using a Flash Copy component.